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Ref: #10CFR50.54(f)

CPSES-2005001341
Log # TXX-05121

June 27, 2005

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
60-DAY RESPONSE TO NRC BULLETIN 2004-01,
"INSPECTION OF ALLOY 82/182/600 MATERIALS USED IN THE FABRICATION OF PRESSURIZER PENETRATIONS AND STEAM SPACE PIPING CONNECTIONS AT PRESSURIZED WATER REACTORS," REVISION 1 OF NRC ORDER EA-03-009, "ISSUANCE OF FIRST REVISED NRC ORDER (EA-03-009) ESTABLISHING INTERIM INSPECTION REQUIREMENTS FOR REACTOR PRESSURE VESSEL HEADS AT PRESSURIZED WATER REACTORS" AND NRC BULLETIN 2003-02, "LEAKAGE FROM REACTOR PRESSURE VESSEL LOWER HEAD PENETRATIONS AND REACTOR COOLANT PRESSURE BOUNDARY INTEGRITY"

REF:
1. Letter logged TXX-03163 from Mike Blevins to the NRC dated September 19, 2003.
2. Letter logged TXX-03195 from Mike Blevins to the NRC dated December 18, 2003.
3. Letter logged TXX-04140 from Mike Blevins to the NRC dated July 27, 2004.

Gentlemen:

The first revision of NRC Order EA-03-009, dated February 20, 2004, requires that, within 60 days after returning a unit to operation, licensees provide a description of

A101
A110
A109

the inspections performed as required by the order and describe any leaks or boron deposits found during the inspection. NRC Bulletin 2004-01, dated May 28, 2004, requested that, within 60 days of plant restart following the next inspection of the Alloy 82/182/600 pressurizer penetrations and steam space piping connections, licensees provide:

(a) a statement indicating that the inspections described in the licensee's response to item (1)(c) of this bulletin were completed and a description of the as-found condition of the pressurizer shell, any findings of relevant indications of through-wall leakage, follow-up nondestructive examination (NDE) performed to characterize flaws in leaking penetrations or steam space piping connections, a summary of all relevant indications found by NDE, a summary of the disposition of any findings of boric acid, and any corrective actions taken and/or repairs made as a result of the indications found.

NRC Bulletin 2003-02, dated August 21, 2003, requested that, within 60 days of plant restart following the next inspection of the reactor pressure vessel (RPV) lower head penetrations, the subject pressurized water reactor addressees should submit to the NRC a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the lower head, any findings of relevant indications of through-wall leakage, and a summary of the disposition of any findings of boric acid deposits and any corrective actions taken as a result of indications found.

Attached are the 60-day responses for Comanche Peak (CPSES), Unit 2, requested by NRC Bulletin 2004-01, and by the first revision of NRC Order EA-03-009. In addition, results of ongoing inspection activities supplemental to the specific requirements of NRC Bulletin 2003-02 and NRC Order EA-03-09 are also provided. These detailed reports are summarized below.

During the Unit 2 eighth refueling outage (2RF08), completed on April 28, 2005, CPSES was not required under the First Revised Order EA-03-09 to conduct a Bare Metal Visual exam of the RPV upper head. However, CPSES personnel did perform a general visual assessment of the RPV upper head surface under the insulation to identify anything unusual indicative of conditions that would warrant further investigation. No evidence of VHP nozzle leakage or cracking, or degradation of the RPV head was identified.

Similarly, CPSES commitments did not require a bare metal visual examination of the RPV lower head during 2RF08. However, TXU conducted a bare metal general visual assessment of all 58 RPV lower head bottom mounted instrument (BMI)

penetrations, including essentially 100 percent of the circumference of each penetration as it enters the RPV lower head, and the areas surrounding the penetrations. No general surface area limitations were encountered on the lower head examination and no evidence of VHP nozzle leakage or cracking, or degradation of the RPV heads was identified.

Visual examinations were performed during 2RF08 on all the pressurizer steam space Alloy 82/182 locations. There were no findings of through-wall boric acid leakage on any of the examination areas or their surroundings, and there were no signs of boric acid leakage from adjoining piping or components reaching the pressurizer shell. In addition, the pressurizer surge line, the RPV hot and cold legs, and the four steam generator channel head bowl drain Alloy 82/182 locations were all visually inspected with no adverse findings.

Under the revised Order, CPSES is required to complete a nonvisual NDE of the Unit 2 RPV upper head penetrations prior to February 11, 2008. During 2RF08, CPSES performed non-visual NDE volumetric and surface examination of 77 of 79 reactor head penetration tubes using a combination of ultrasonic and eddy current testing methods. The examinations detected no evidence of primary water stress corrosion cracking discontinuities or indications of boric acid leak paths. No flaws needing disposition or corrective action were noted.

The two remaining tubes containing the RIVLIS probes were known to be obstructed prior to the outage and a modification was planned to allow access for inspection. However, unexpected conditions were encountered and efforts to implement the modification were halted. These two remaining locations will be modified and inspected during a future outage (presently planned for 2RF09 in fall 2006).

This communication contains the following licensing basis commitments regarding CPSES Unit 2.

Number	Description
27348	The two remaining upper head penetrations will be modified and inspected during a future outage (presently planned for 2RF09 in fall 2006).
27349	The inspection encountered limitations to the Order's specified examination areas in five of the RHPTs. The examination details and technical justification for acceptability despite the limitations will be provided in a request for relaxation per section IV.F of the Order.

Should you have any questions, please contact Jimmy Seawright at (254) 897-0140.

I state under penalty of perjury that the foregoing is true and correct.

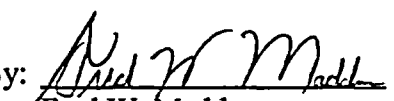
Executed on June 27, 2005.

Sincerely,

TXU Generation Company LP

By: TXU Generation Management Company LLC
Its General Partner

Mike Blevins

By: 
Fred W. Madden
Director, Regulatory Affairs

JDS
Attachments
1. 60-Day Response to NRC Bulletin 2004-01
2. 60-Day Response to NRC Order EA-03-009
3. Ongoing Visual Inspection Results Supplemental to NRC Bulletin 2003-02

c - B. S. Mallett, Region IV
M. C. Thadani, NRR
Resident Inspectors, CPSES

60-Day Response to NRC Bulletin 2004-01, "Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at Pressurized Water Reactors"

NRC Requested Information:

Within 60 days of plant restart following the next inspection of the Alloy 82/182/600 pressurizer penetrations and steam space piping connections, the subject pressurized water reactor licensees should either:

(a) Submit to the NRC a statement indicating that the inspections described in the licensee's response to item (1)(c) of this bulletin were completed and a description of the as-found condition of the pressurizer shell, any findings of relevant indications of through-wall leakage, follow-up nondestructive examination (NDE) performed to characterize flaws in leaking penetrations or steam space piping connections, a summary of all relevant indications found by NDE, a summary of the disposition of any findings of boric acid, and any corrective actions taken and/or repairs made as a result of the indications found,

or

(b) if the licensee was unable to complete the inspections described in response to item (1)(c) of this bulletin, submit to the NRC a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the pressurizer shell, any findings of relevant indications of through-wall leakage, follow-up NDE performed to characterize flaws in leaking penetrations or steam space piping connections, a summary of all relevant indications found by NDE, a summary of the disposition of any findings of boric acid, and any corrective actions taken and/or repairs made as a result of the indications found. In addition, supplement the answer which you provided to item (1)(d) above to explain why the inspections that you completed were adequate for the purpose of maintaining the integrity of your facility's reactor coolant pressure boundary and for meeting all applicable regulatory requirements which pertain to your facility.

For lines attached directly to the pressurizer, with the exception of the surge line, the information requested above should be provided for any locations, including those remote from the pressurizer shell, which contain Alloy 82/182/600 materials which are exposed to conditions similar to those of the pressurizer environment.

TXU Response:

During 2RF08, examinations were performed on all the pressurizer steam space Alloy 82/182/600 locations. Direct visual examinations were performed on the following locations:

- Safety 1/Line 6-RC-2-096, Weld TCX-1-4501-1 (Pressurizer Nozzle to Safe End)
- Safety 2/Line 6-RC-2-098, Weld TCX-1-4502-1 (Pressurizer Nozzle to Safe End)
- Safety 3/Line 6-RC-2-100, Weld TCX-1-4503-1 (Pressurizer Nozzle to Safe End)
- PORV's/Line 6-RC-2-108, Weld TCX-1-4504-1 (Pressurizer Nozzle to Safe End)
- Spray/Line 4-RC-2-09, Weld TCX-1-4506-22 (Pressurizer Nozzle to Safe End)

The examinations required removal of the insulation immediately surrounding the welds. Due to the configuration of the insulation, a large section of insulation was removed around each of the above nozzles, providing direct visual access to the pressurizer head base material. No boric acid leakage was detected on the pressurizer shell and no evidence of current or previous corrosive attack of the shell was identified.

There were no findings of through-wall boric acid leakage on any of the examination areas or their surroundings, and there were no signs of boric acid leakage from adjoining piping or components reaching the pressurizer shell. Therefore, augmented NDE was not warranted nor were any relevant indications detected by NDE. Likewise, no boric acid findings required disposition or corrective measures.

As a prudent measure, the insulation on the following Alloy 82/182/600 welds was removed and direct visual inspection was also performed:

- Pressurizer surge line (pressurizer nozzle to safe end weld),
- All eight RPV nozzles (hot and cold leg nozzle to safe end welds), and
- Steam generator bowl drains (plugged)

No boric acid leakage was detected at these locations.

As part of an Industry Good Practice Recommendation promulgated by Electric Power Research Institute / Materials Reliability Program (MRP) Letter MRP 2004-038, the inspections were used as an opportunity to gather as-built dimensional information on all of the above welds. This information was obtained and will be forwarded to the appropriate parties in the industry.

60-Day Response to NRC Order EA-03-009, "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"

NRC Required Information:

The first revision of NRC Order EA-03-009, dated February 20, 2004, required that, for each inspection required in Paragraph C of the Order, the Licensee shall submit a report detailing the inspection results within 60 days after returning the plant to operation. For each inspection required in Paragraph D of the Order, the Licensee shall submit a report detailing the inspection results within 60 days after returning the plant to operation if a leak or boron deposit was found during the inspection.

TXU Response:

CPSES Unit 2 accumulated approximately 1.99 total effective degradation years prior to 2RF08. Therefore, TXU is required to comply with Sections IV.C.(3) and IV.D of the First Revised Order EA-03-009. Section IV.C (3) requires a bare metal visual exam at least every third refueling outage or five years and a nonvisual NDE prior to February 11, 2008

TXU previously complied with Section IV.C.(3)(a) of the Order by performing a bare metal visual inspection of 100 percent of the reactor pressure vessel (RPV) head penetrations, including 360 degrees around each of the vessel head penetration (VHP) nozzles and the head vent penetration, during 2RF07, completed in the fall of 2003 (Reference 2). The next bare metal exam must therefore be completed no later than fall of 2008 per the Order.

However, TXU performed a general visual assessment of the RPV head surface under the insulation during 2RF08 (spring 2005) to identify anything unusual indicative of conditions that would warrant further investigation. No evidence of VHP nozzle leakage or cracking, or degradation of the RPV head was identified.

TXU partially complied with Section IV.C.(3)(b) of the Order by performing non-visual NDE volumetric examination of 77 of 79 reactor head penetration tubes (RHPT), including the head vent penetration. A combination of ultrasonic and eddy current testing methods were used with probes delivered to the tubes by a remote positioning device (or manually in the case of the head vent tube). The inspection encountered limitations to the Order's specified examination areas in five of the RHPTs due to the large as-built configuration of the J-welds, the threads at the end of these specific tubes, and the geometry of the transducers on the examination probes. The examination details and technical justification for acceptability despite the limitations will be provided in a request for relaxation per section IV.F of the Order.

The examinations detected no discontinuities or indications of boric acid leak paths; no flaws needing disposition or corrective action were identified.

The two remaining RHPTs house probes for the reactor vessel level indicating system have a permanently installed guide sleeve that precludes access to the penetration tube ID surface for inspection. This obstructed condition was identified while planning the examination and a design modification was developed to clear the obstruction and allow access for inspection. However, unexpected conditions were encountered that interfered with the tooling and efforts to implement the modification were halted. These two remaining locations will be modified and inspected during a future outage (presently planned for 2RF09, fall 2006).

TXU complied with Section D of the Order by performing a visual inspection to identify potential boric acid leaks from pressure-retaining components above the RPV head. No evidence of leakage was identified.

Ongoing Visual Inspection Results Supplemental to NRC Bulletin 2003-02, "Leakage From Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity"

NRC Requested Information:

NRC Bulletin 2003-02, dated August 21, 2003, requested that, within 60 days of plant restart following the next inspection of the reactor pressure vessel (RPV) lower head penetrations, the subject pressurized water reactor addressees should submit to the NRC a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the lower head, any findings of relevant indications of through-wall leakage, and a summary of the disposition of any findings of boric acid deposits and any corrective actions taken as a result of indications found.

CPSES Update:

Scope of Inspection:

During the Comanche Peak (CPSES) Unit 2 eighth refueling outage (2RF08), TXU performed a bare metal general visual assessment of all 58 RPV lower head bottom mounted instrument (BMI) penetrations, including essentially 100 percent of the circumference of each penetration as it enters the RPV lower head, and the areas surrounding the penetrations. TXU committed (Reference 1) to perform a full BMV inspection of the lower RPV head at least every third refueling outage or every five (5) years, whichever occurs first. This requirement was initially fulfilled during 2RF07, fall 2003 as reported in Reference 2.

This latest inspection, completed during 2RF08, was less rigorous than the full BMV exam conducted during the previous refueling outage but otherwise exceeds this committed inspection frequency.

Methodology:

The inspection of the RPV lower head and BMI penetrations was conducted as a direct visual examination by three individuals. Excellent visual access to the entire lower RPV head was obtained from four vantage points by removing insulation panels roughly 90 degrees apart beneath the RPV. Each individual independently examined the lower head surface and the penetration tubes from all four vantage points.

Inspection Results:

No areas of boric acid accumulation or signs of leakage from the BMI penetration/RPV lower head interface areas were identified.

The examination identified some slight trails from above the lower head, which appear to be boric acid residue. The trails on the vessel surface were translucent and non-three-dimensional, with no visible attack on the carbon steel of the vessel head. Most notably, these trails were unchanged from the previous exam in 2RF07 which confirmed the prior determination that the condition was not indicative of leakage from any BMI tube penetration annulus. There were no deposits in the penetration tube/head locations that would obscure or mask boron emanating from a pressure boundary flaw or otherwise impede a future examination within this area.

Since no evidence of degradation of the RPV lower head was detected, no corrective actions were necessary.